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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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Brian S. Hilton

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EXAMINER

GOFF II, JOHN L

ART UNIT

PAPER NUMBER

1733

DATE MAILED: 06/23/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/766,008

Applicant(s)

HILTON ET AL.

Examiner

John L. Goff

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 27 April 2006.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-21 is/are pending in the application.
- 4a) Of the above claim(s) 7-9, 12, 13 and 15-21 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-5, 10, 11 and 14 is/are rejected.
- 7) ☒ Claim(s) 6 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 30 January 2006 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date <u>1/29/04</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Election/Restrictions

1. Applicant's election with traverse of Species I in the reply filed on 4/27/06 is acknowledged. The traversal is on the ground(s) that the generic claims are not so broad as to place an undue burden on the Patent Office to search and examine the full scope of the claims. This is not found persuasive because the restriction requirement properly set forth the patentably distinct species, and applicants have not asserted the species are not patentably distinct nor have applicants submitted evidence or identified such evidence now of record showing the inventions or species to be obvious variants or clearly admitted on the record that this is the case.

The requirement is still deemed proper and is therefore made FINAL.

Drawings

2. The drawings were received on 1/30/06. These drawings are acceptable.

Claim Rejections - 35 USC § 102

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

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4. Claim 14 is rejected under 35 U.S.C. 102(b) as being anticipated by Wolcott (U.S. Patent 4,859,378).

Wolcott discloses a method of joining a first thermoplastic object (12 of Figure 1) including a heat stake (14 of Figure 1), i.e. a stake deformable by heat, to a second non-thermoplastic object (16 of Figure 1) including an aperture (18 of Figure 1) and a well (20 of Figure 1), i.e. a three-dimensional feature, disposed within the vicinity of the aperture with precision alignment comprising assembling, i.e. placing and pressing, the first object and the second object into contact by inserting the heat stake into the aperture (Figure 1) and applying thermally energy to the heat stake so the heat stake deforms and fills the aperture and well to form the deformed stake flush with the surface of the second object (Figure 2) (Column 2, lines 22-51).

Regarding the limitation “applying thermal energy to the at least one heat stake”, it is noted Wolcott deforms the heat stake ultrasonically which applies mechanical energy to the heat stake which then generates heat that is applied to the heat stake and thus, thermal energy is applied to the heat stake to deform the heat stake and the limitation is met.

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

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6. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

7. Claims 1-5 and 14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Dietl et al. (U.S. Patent 5,519,425) in view of Wolcott and optionally in view of the admitted prior art (Specification paragraphs 2-9).

Dietl et al. disclose a method of forming an ink cartridge (10 of Figure 2) comprising joining an ink manifold, i.e. fluid container, (12 of Figure 2) including two heat stakes (40 of Figure 2), i.e. stakes deformable by heat, a die module, i.e. fluid ejector, (14 of Figure 2) and a heat sink, i.e. substrate, (24 of Figure 2) including two apertures with precision alignment by assembling, i.e. placing and pressing, the ink manifold, die module, and heat sink into contact by inserting the heat stakes into the apertures (Figure 3) and applying thermal energy to the heat stakes so the heat stakes deform and partially fill the apertures and protrude on the upper surface of the heat sink (Figure 3) (Column 4, lines 32-38 and Column 5, lines 59-67 and Column 6, lines 38-45). Dietl et al. are silent as to the heat sink including two apertures and two three-dimensional features. It would have been obvious to one of ordinary skill in the art at the time the invention was made to include above the two apertures in Dietl et al. two wells, i.e. three dimensional features, as was known in the art of staking as shown by Wolcott such that the stake

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deforms and fills the apertures and wells during staking with a flush fit at the surface of the heat sink thus allowing for the fabrication of smaller ink cartridges. Wolcott is described in full detail above.

Regarding the limitation “applying thermal energy to the at least one heat stake”, it is noted Dietl et al. deforms the heat stake ultrasonically which applies mechanical energy to the heat stake which then generates heat that is applied to the heat stake and thus, thermal energy is applied to the heat stake to deform the heat stake and the limitation is met. In the event it is shown that heat staking ultrasonically is not “applying thermal energy” the following rejection applies. It would have been obvious to one of ordinary skill in the art at the time the invention was made to deform the stake as taught by Dietl et al. as modified by Wolcott using either of applying deforming heat with a heated staking tool or applying deforming heat ultrasonically as both were well known and functionally equivalent techniques used in the art as optionally shown for example by the admitted prior art wherein only the expected results of deforming the heat stake would be achieved.

The admitted prior art discloses it was well known and conventional in the art of joining an ink manifold and a die module to join by a heated staking tool or ultrasonically (Paragraphs 7 and 9).

8. Claims 10 and 11 are rejected under 35 U.S.C. 103(a) as being unpatentable over Dietl et al., Wolcott, and optionally the admitted prior art as applied to claims 1-5 and 14 above, and further in view of Ikegami et al. (U.S. Patent 6,460,965).

Dietl et al., Wolcott, and optionally the admitted prior art as applied above teach all of the limitations in claims 10 and 11 except for a teaching of including an elastic member between the

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ink manifold and die module, it being noted Dietl et al. teach the two are joined by adhesive. It would have been obvious to one of ordinary skill in the art at the time the invention was made to join the ink manifold and die module taught by Dietl et al. as modified by Wolcott, and optionally the admitted prior art by placing an elastic member to form a compression seal therebetween as was known in the art and shown for example by Ikegami et al. to avoid having to handle an adhesive and to easily recycle the ink cartridge by being able to disassemble all of the components.

Ikegami et al. disclose a method of forming an ink cartridge comprising joining an ink manifold, i.e. fluid container, (42 of Figure 4), a die module, i.e. fluid ejector, (12 of Figure 4) and a heat sink (40 of Figure 4), wherein the ink manifold and die module are joined with an elastic member (44 of Figure 4) that forms a compression seal therebetween as opposed to joining with adhesive to avoid having to handle the adhesive and to easily recycle the ink cartridge by being able to disassemble all of the components (Column 2, lines 7-40 and Column 4, lines 9-61).

Allowable Subject Matter

9. Claim 6 is objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

10. The following is a statement of reasons for the indication of allowable subject matter:

The prior art of record fails to teach or suggest a method of joining a fluid container, including at least one heat stake, a fluid ejector, and a substrate including at least one aperture

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and at least one three-dimensional feature disposed in the vicinity of the at least one aperture by assembling, i.e. placing and pressing, the fluid container, fluid ejector, and substrate into contact by inserting the at least one heat stake into the at least one aperture and applying thermal energy to deform the at least one heat stake and partially fill the at least one aperture and at least one three-dimensional feature **wherein the three-dimensional feature is a circular groove surrounding the at least one aperture.**

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Conclusion

11. Any inquiry concerning this communication or earlier communications from the examiner should be directed to **John L. Goff** whose telephone number is **(571) 272-1216**. The examiner can normally be reached on M-F (7:15 AM - 3:45 PM).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Richard Crispino can be reached on (571) 272-1226. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.



John L. Goff